

# Arizona SRMS Webinar

July 9, 2014; 9:00am-11:00pm Pacific

Participant Dial-In: 1-888-850-4523; Passcode 672617

Webinar URL: [http://anl.adobeconnect.com/az\\_srms/](http://anl.adobeconnect.com/az_srms/)

Agenda and documents posted at:

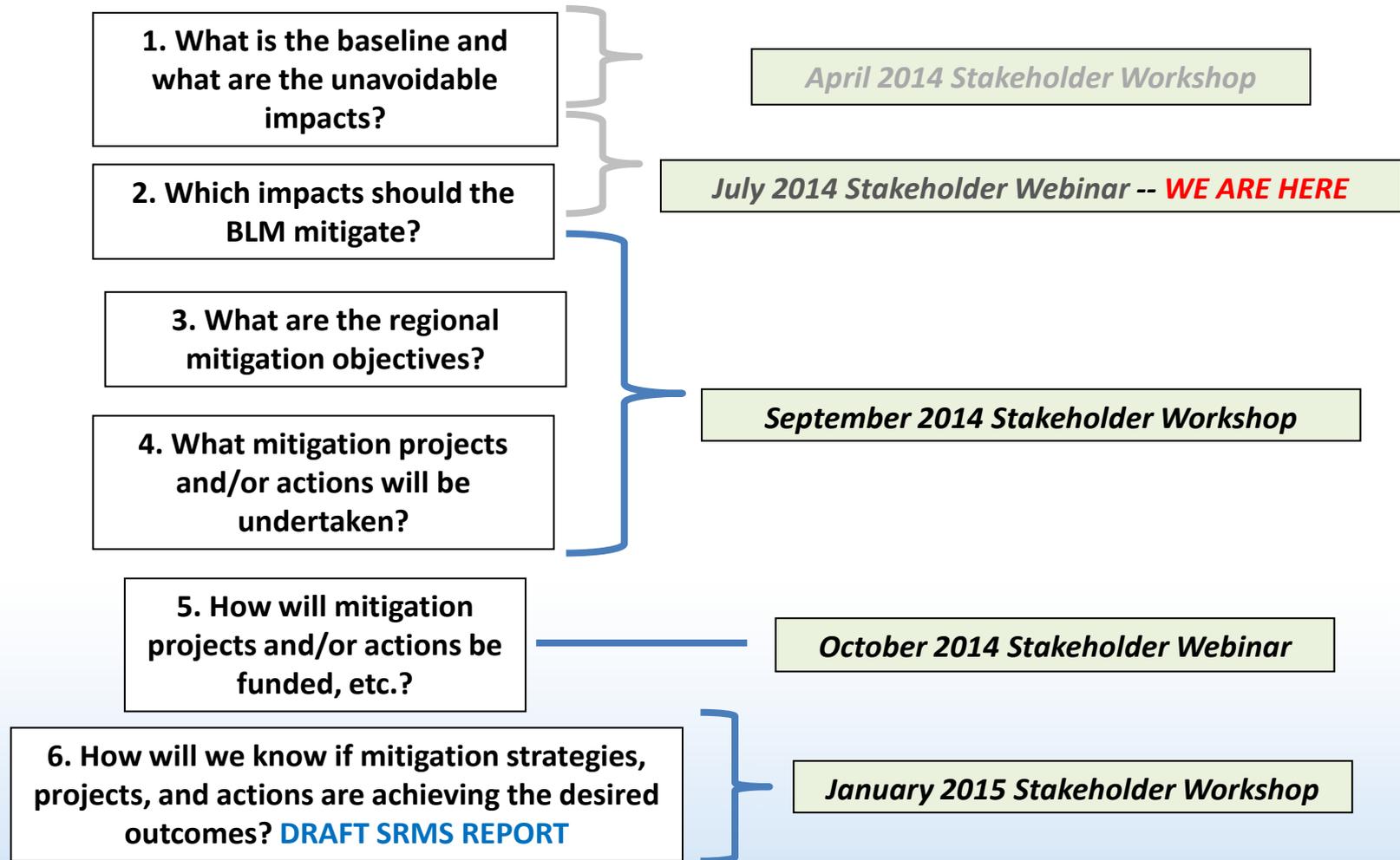
[http://www.blm.gov/az/st/en/prog/energy/solar/arizona\\_regional\\_mitigation.html](http://www.blm.gov/az/st/en/prog/energy/solar/arizona_regional_mitigation.html)

## Call-In Instructions:

- ***Please mute phone and computer when you are not speaking***
- ***If you have a question, please click on “Raise Hand” under the Set Status icon (on status bar at top of web page)***
- ***You will be called on to state your name, organization, question/comment. When you have finished speaking, please lower your hand and re-mute your phone***

# Introduction and Webinar Objectives

# AZ SRMS Process – Where We Are At

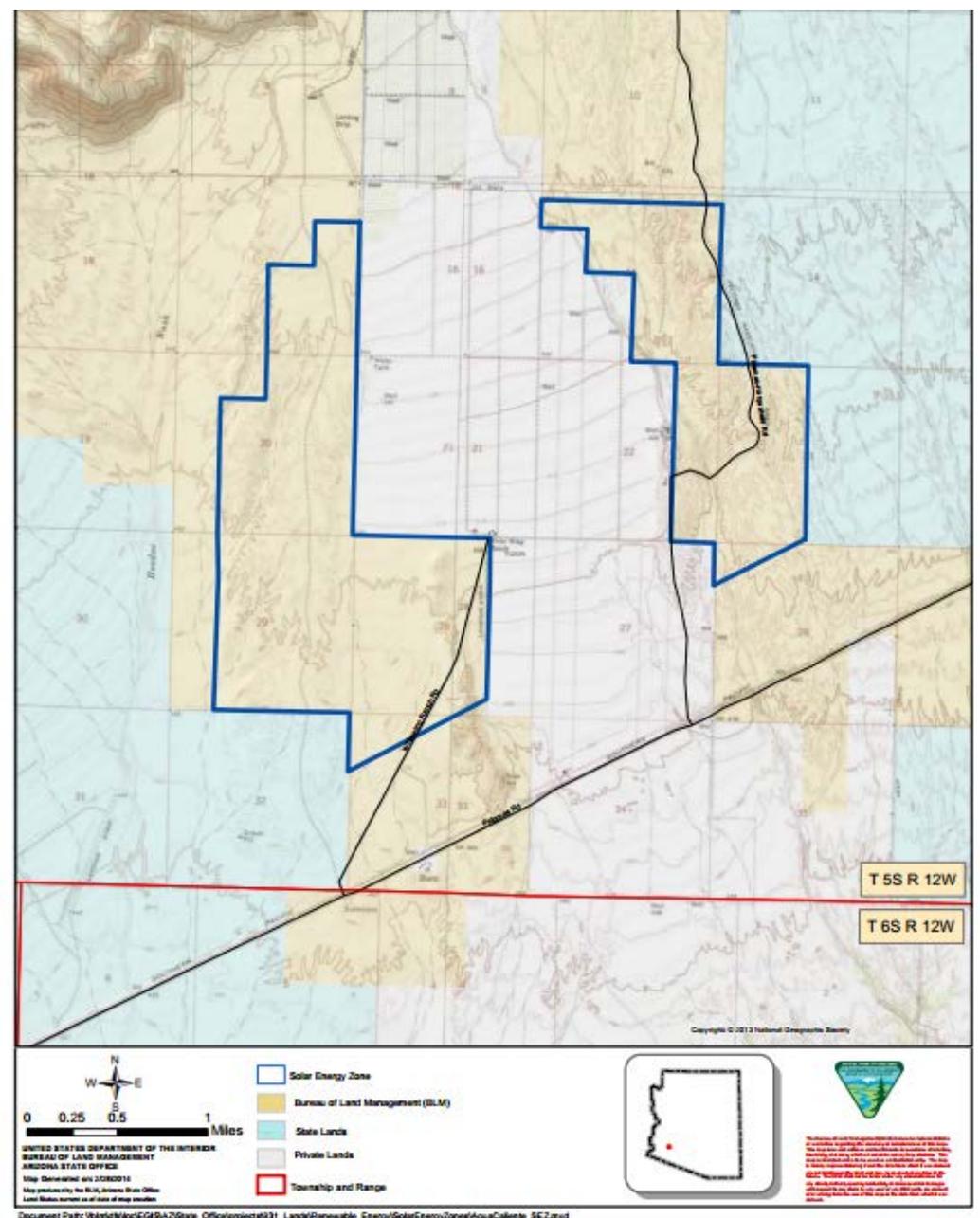


# Webinar Objectives

1. Inform stakeholders of revisions made to the impact tables as a result of their input during the April workshop;
2. Introduce and get feedback on BLM's preliminary assessment of which unavoidable adverse impacts may warrant regional mitigation; and
3. Introduce the process through which stakeholders may nominate candidate site locations for regional mitigation.



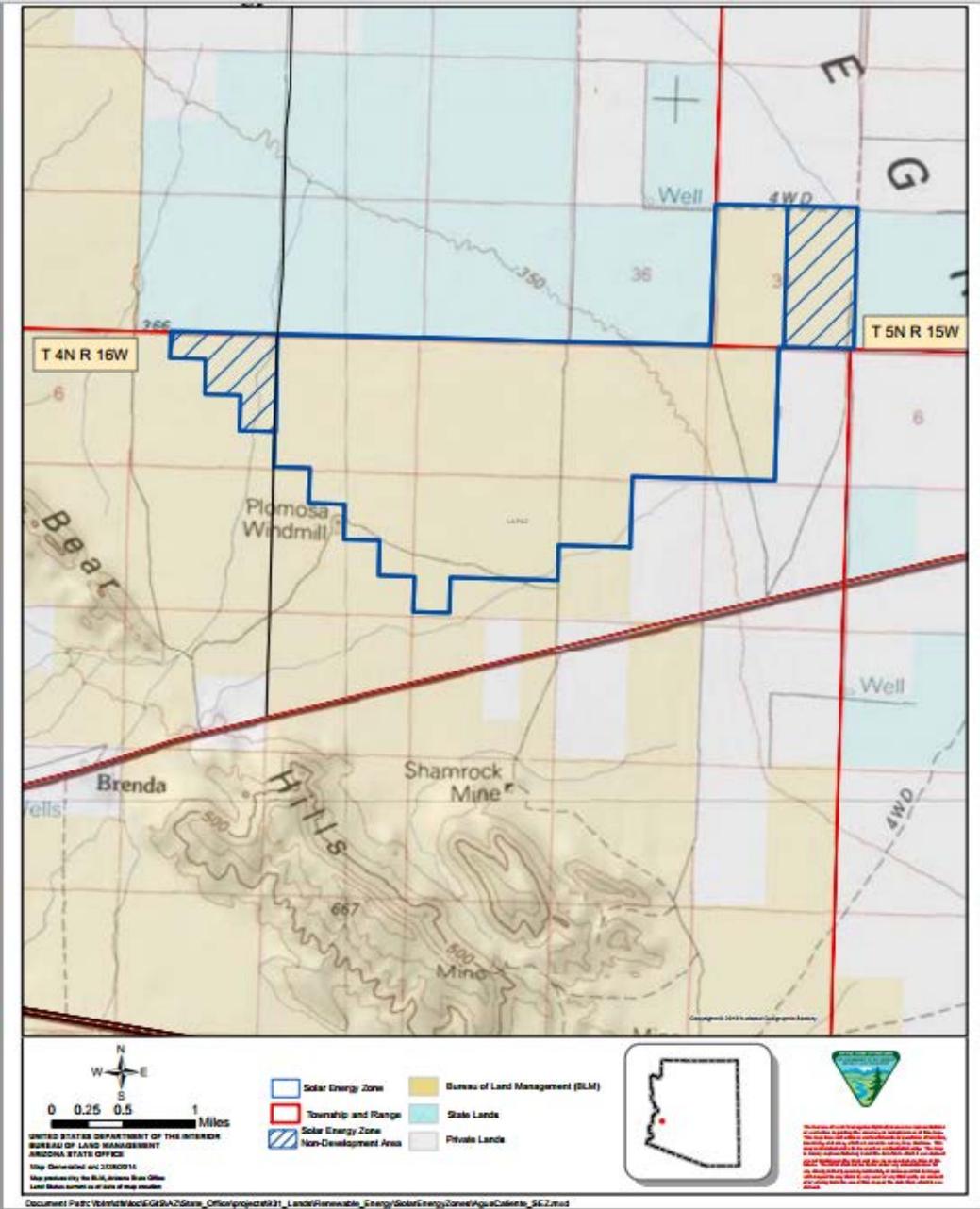
# Agua Caliente Solar Energy Zone



# Agua Caliente SEZ

- SEZ established in Record of Decision for the Restoration Design Energy Project EIS
- 2,560 developable acres
  - Up to 408 MW generation capacity
- Located in Yuma County in southwestern Arizona, ~65 miles northeast of Yuma and ~12 miles north of I-8
  - BLM Yuma Field Office
- Bordered by BLM-administered lands to the north and west
- A 500 kV transmission line is located 0.5 miles south of SEZ
- A 290-MW PV facility on private lands adjacent to SEZ boundary is under construction

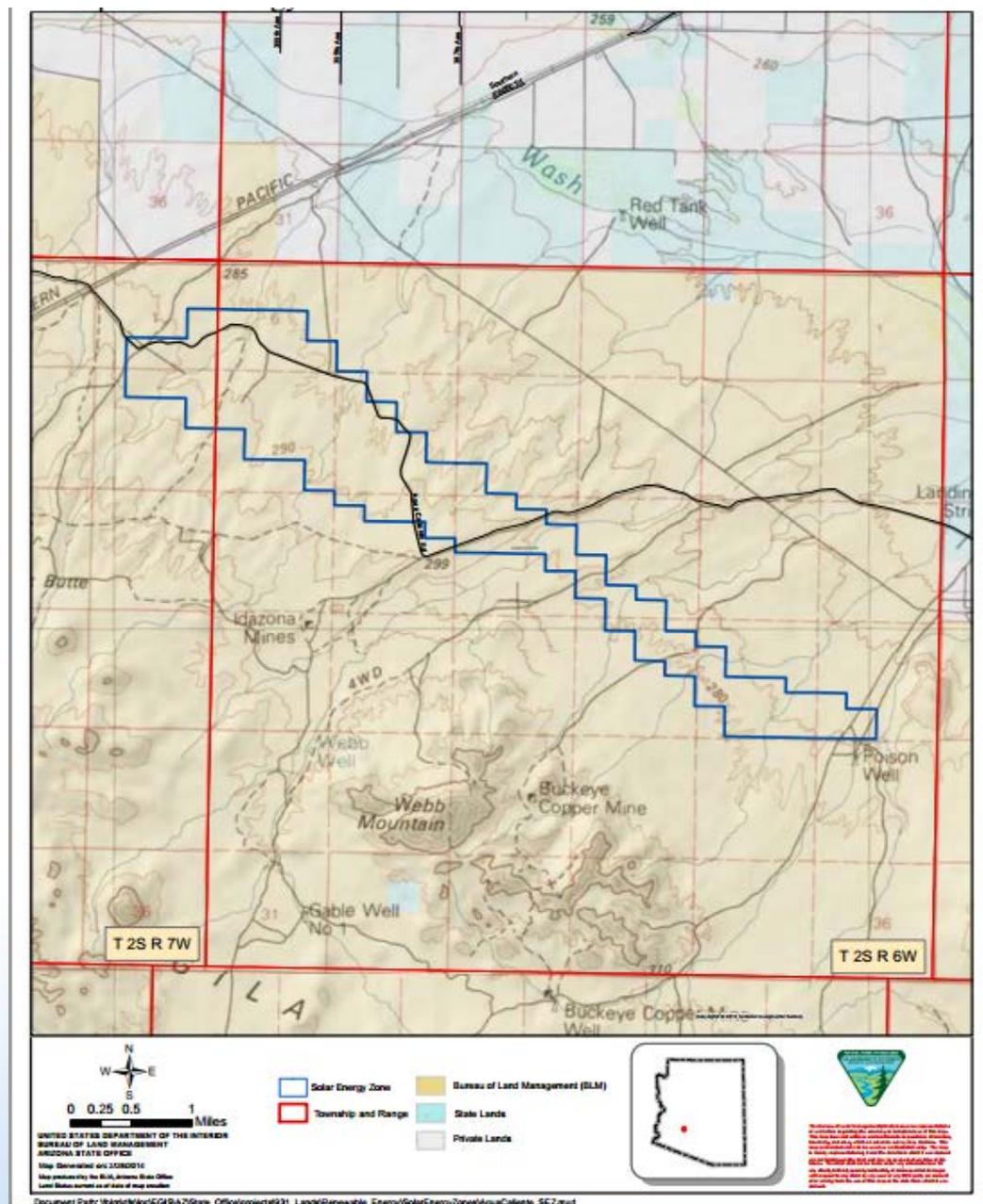
# Brenda Solar Energy Zone



# Brenda SEZ

- 3,348 developable acres
  - Up to 536 MW generation capacity
- Located in La Paz County in west-central Arizona ~32 miles east of the California border and near US 60 and I-10
  - BLM Lake Havasu Field Office
- Bordered by BLM-administered lands to the west
- A 500 kV transmission line is located 12 miles south of the SEZ
- About 18 miles east of Quartzite

# Gillespie Solar Energy Zone



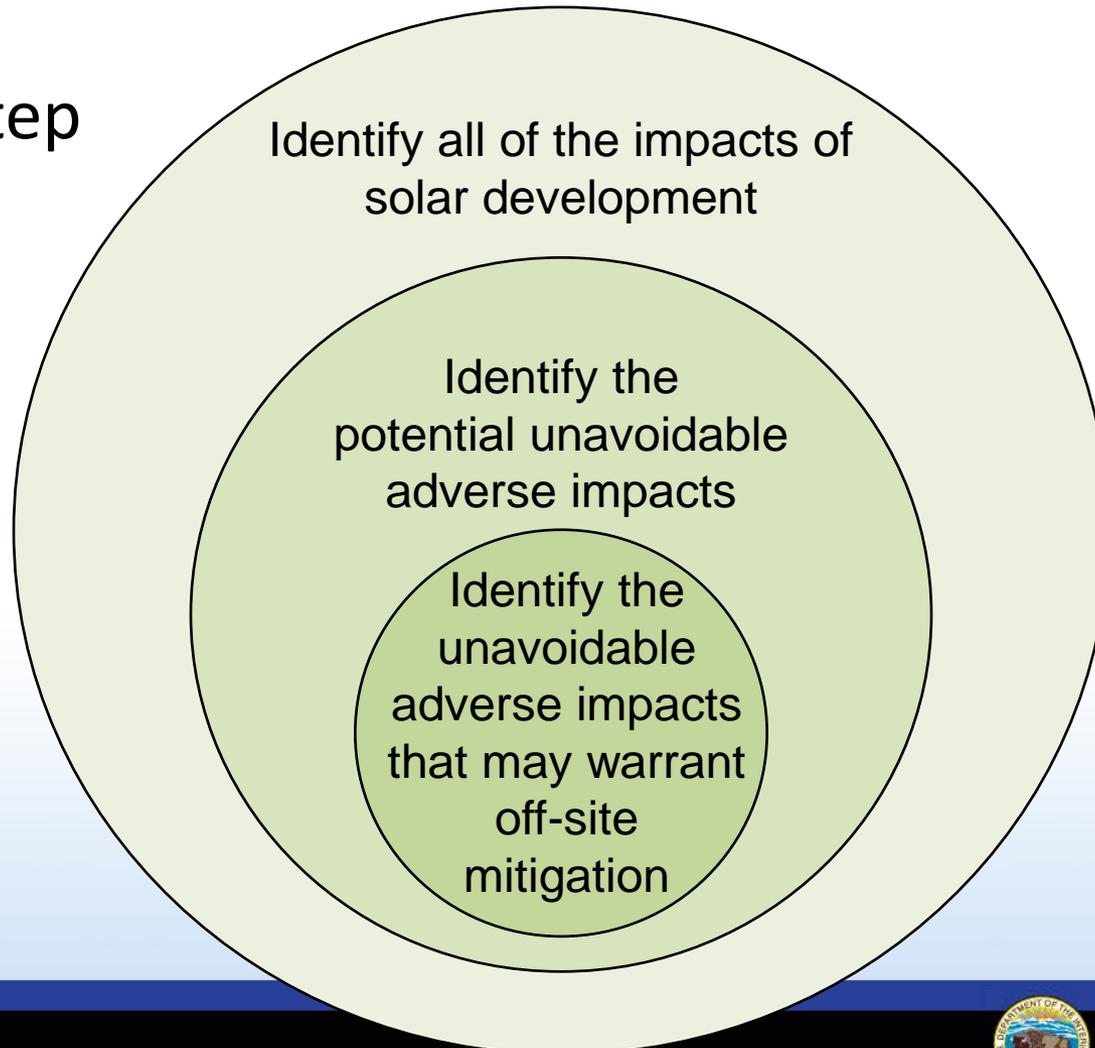
# Gillespie SEZ

- 2,618 developable acres
  - Up to 419 MW generation capacity
- Located in Maricopa County in west-central Arizona
  - BLM Lower Sonoran Field Office
- Completely bordered by BLM-administered lands
- Nearest major road access to the SEZ is Old U.S. 80, located 3 miles from the eastern tip of the SEZ
- A 500 kV transmission line is located 1 mile west of the SEZ

# SEZ Impact Tables

# Methodology for Identifying the Impacts of Solar Development that May Warrant Off-site Mitigation

Three step  
process



Identify all of the impacts of solar development

Identify the potential unavoidable adverse impacts

Identify the unavoidable adverse impacts that may warrant off-site mitigation

Resource/Issue	Impacts <sup>1</sup>	On-site Mitigation <sup>2</sup>		Unavoidable Adverse Impacts <sup>3?</sup>	May Warrant Regional Mitigation?
		Avoidance	Minimization		
<b>Hydrology: Water Quality and Groundwater Availability</b> Section 8.3.9	<p><b>Direct:</b> Groundwater withdrawals for development may cause declines in groundwater elevations that can impact water availability for surface water features, vegetation, ecological habitats, regional groundwater flow paths, and other groundwater users in the basin. A riverine wetland is located just inside the southeast corner of the SEZ. The Gillespie SEZ is in the Lower Hassayampa groundwater basin, where the primary aquifer is composed of basin-fill alluvium deposits.</p> <p><b>Indirect:</b> Groundwater withdrawals for solar energy facilities have the potential to affect other groundwater users in the basin.</p> <p><b>Cumulative:</b> Cumulative impacts on groundwater could occur depending on the type, number, and location of other developments in the region.</p>	<p>Groundwater analyses suggest that full build-out of wet-cooled technologies is not feasible.</p> <p>See programmatic design features at <a href="http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Water.pdf">http://blmsolar.anl.gov/documents/docs/peis/programmatic-design-features/Water.pdf</a></p>	<p>For mixed-technology development scenarios, any proposed wet-cooled projects should utilize water conservation practices.</p> <p>See programmatic design features.</p>	<p>Maybe<sup>10</sup></p>	<p>Maybe</p>

# Revisions to SEZ Impact Tables Made in Response to Stakeholder Input at April Workshop

- Acoustics - text added to clarify that unavoidable adverse impacts are “maybe” because they will vary by technology
- Air Quality – impact text changed from “maybe” to “yes, if site is graded”
- Climate – text added to cumulative impacts summary to provide more context about AZ energy production using fossil fuels
- Cultural – unavoidable adverse impacts were changed to “yes” for all SEZs
  - some clarifications made to text regarding landscape scale
  - text was revised specific to Brenda SEZ
  - footnote added to emphasize that avoidance is preferred mitigation strategy

# Revisions to SEZ Impact Tables Made in Response to Stakeholder Input at April Workshop (cont.)

- Vegetation – development of a weed management plan added to minimization measures
- Terrestrial Wildlife and Aquatic Biota
  - noise impacts clarified for all SEZs
  - additional text added for bat species
  - fencing mitigation text clarified
- Migratory Birds – text added to data gaps description and explanation added to reference relevance of night sky impacts

# Revisions to SEZ Impact Tables Made in Response to Stakeholder Input at April Workshop (cont.)

- Animal Special Status Species
  - text revised to clarify consultation with USFWS for ESA-listed and proposed species
  - footnote added to Agua Caliente SEZ to address pronghorn populations
- Environmental Justice – unavoidable adverse impact changed from “no” to “maybe” for Agua Caliente and Brenda SEZs
- Surface Water Hydrology
  - unavoidable adverse impacts changed to “yes” for all SEZs
  - text added to Agua Caliente SEZ to discuss dry washes
  - data gap added for consideration of impacts on stream channels and washes during project siting and design

# Revisions to SEZ Impact Tables Made in Response to Stakeholder Input at April Workshop (cont.)

- Groundwater
  - footnote added to indicate wet-cooling is not feasible
  - unavoidable adverse impact text still listed as “maybe” to reflect possibility of hybrid cooling for power tower or trough facilities
- Native American Concerns – added text that removal of any cultural resources is a concern
- Recreation – Brenda SEZ revised to include potential impacts on privately owned RV parks; unavoidable adverse impacts was changed to “yes”

# Revisions to SEZ Impact Tables Made in Response to Stakeholder Input at April Workshop (cont.)

- Socioeconomics\* – rephrased indirect impacts since not necessarily positive if local tax revenues are not collected
- Soils – added minimization measure to note soil disturbance and compaction can be minimized by requiring construction workers to stay on roads, and by minimizing new road construction
- Specially Designated Areas – Agua Caliente SEZ revised to reflect recent Visual Impact Assessment

\* Text added to slide after webinar to correct the inadvertent omission

# Stakeholder Input at April Workshop that Did Not Result in an Impact Table Revision

- Plant Special Status Species – text was not changed to “maybe” for all SEZs because of local knowledge on the potential for suitable habitat
- Surface Water Hydrology – despite recommendation, text was not added to avoid Tyson Wash because the wash is not proximate to the Brenda SEZ
- Aviation – Dateland Airfield was not added to the text due to low level of use and distance from the SEZ
- Paleontology – Unavoidable adverse impacts remained “no;” need for project-specific surveys is noted in data gaps, if they are warranted; potential impacts can be mitigated on-site

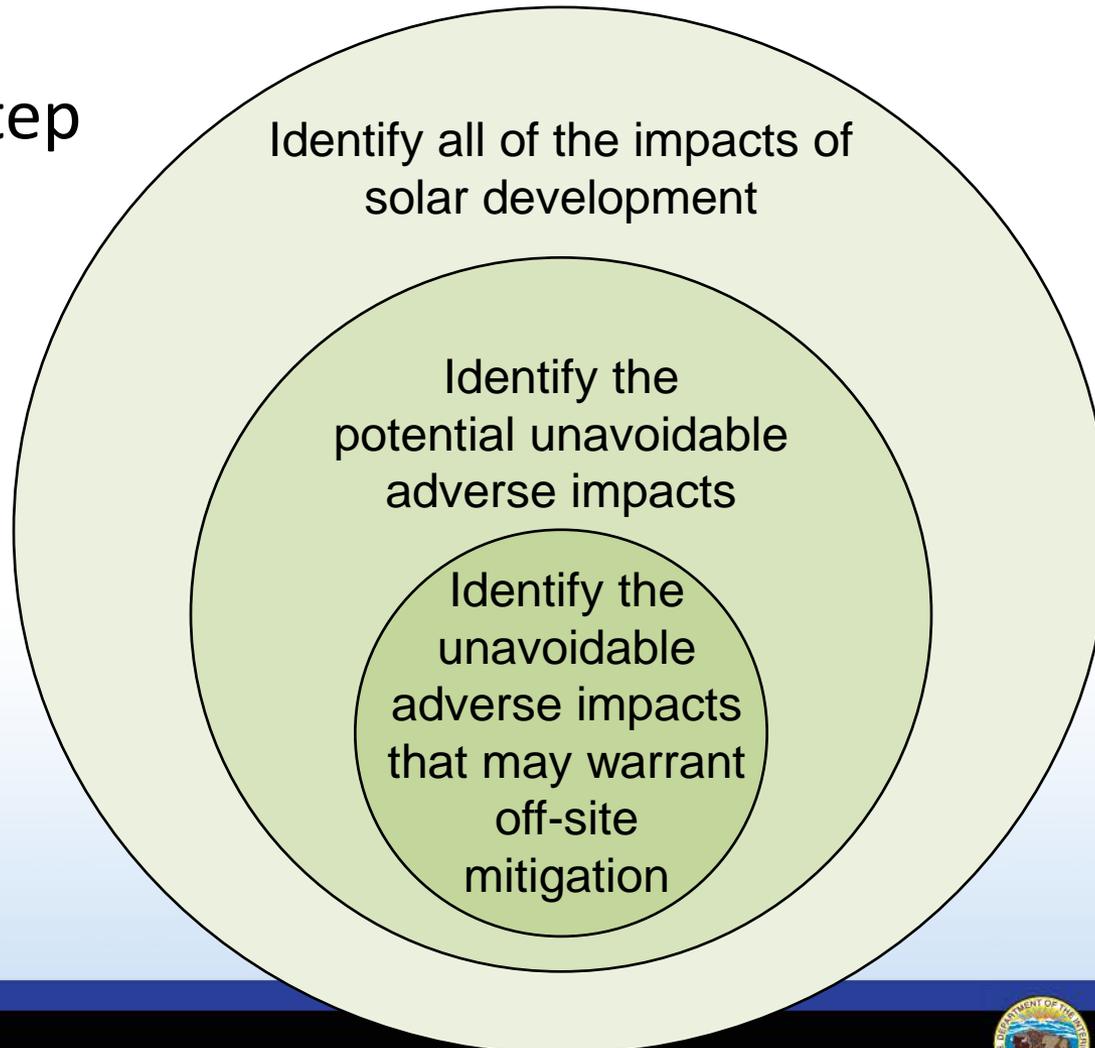
# Stakeholder Input at April Workshop that Did Not Result in an Impact Table Revision (cont.)

- Recreation — Gillespie remains “maybe,” not “yes” for unavoidable adverse impacts because road relocation is mitigation for that impact
- Socioeconomics — same census data available for all SEZs, Brenda remains a “maybe” because adequate data on minority populations are available.
- Transportation — text remained “no” for unavoidable adverse impacts as traffic impacts can be mitigated

# Resources That May Warrant Regional Mitigation

# Methodology for Identifying the Impacts of Solar Development that May Warrant Off-site Mitigation

Three step  
process



# Potential Unavoidable Adverse Impacts from Solar Energy Development in AZ SEZs

- Air Quality
- Cultural
- Vegetation and Riparian Areas
- Terrestrial Wildlife and Aquatic Biota
- Migratory Birds
- Animal Special Status Species
- Surface Water
- Native American Concerns
- Public Access and Recreation (Brenda and Agua Caliente)
- Soils/Erosion
- Specially Designated Areas (Brenda and Gillespie)
- Visual

Identify the potential unavoidable adverse impacts

# Possible Unavoidable Adverse Impacts (“Maybes” in AZ SEZ impact tables)

- Acoustics (depending on technology)
- Plant Special Status Species (Agua Caliente only, if present in the SEZ)
- Environmental Justice (Agua Caliente and Brenda)
- Water Quality and Groundwater Availability (if groundwater is used for cooling)
- Livestock Grazing (Gillespie only)
- Military and Civilian Aviation (possibly with respect to military training routes)
- Public Access and Recreation (Gillespie only)
- Specially Designated Areas (Agua Caliente only)

# Steps for Determining Resources That May Warrant Regional Mitigation

Identify the unavoidable impacts that warrant off-site mitigation

1. Identify likely unavoidable impacts (remember mitigation hierarchy); refine non-development areas
2. Develop a conceptual model
3. Identify at-risk resources and processes in the region
4. Estimate how the unavoidable impacts of solar development will affect the status and trend of the regional at-risk resources
5. Determine the significance of the unavoidable impacts in the region
6. Apply the criteria to identify which unavoidable adverse impacts warrant off-site mitigation

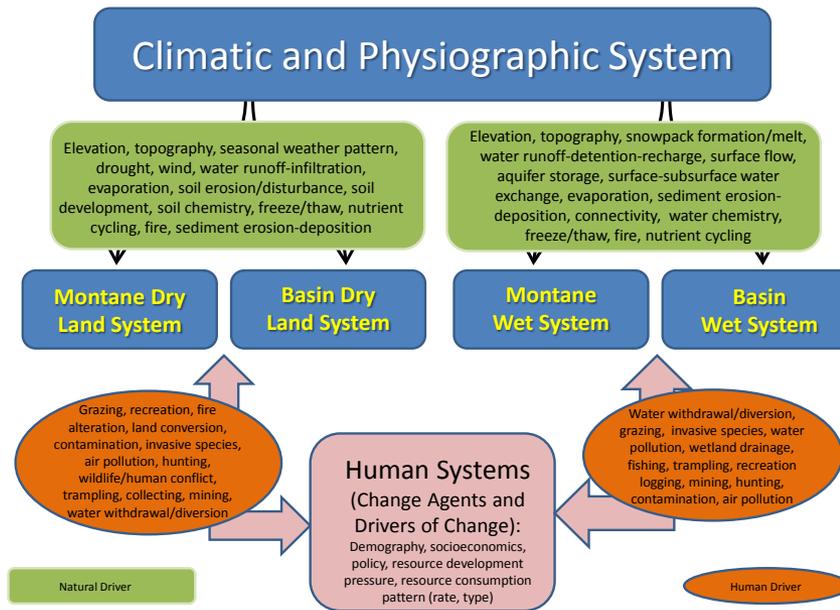
# Unavoidable Impacts: Refine non-development areas

- Local BLM resource specialists will refine the developable area based on:
  - existing right-of-way grants
  - washes/ephemeral streams
  - any other potential land-use conflicts with resource values that might be avoided by restricting development within the SEZ
- Based on refined developable area, specialists will estimate the type, magnitude, and acreage of the unavoidable adverse impacts, where possible

# Conceptual model

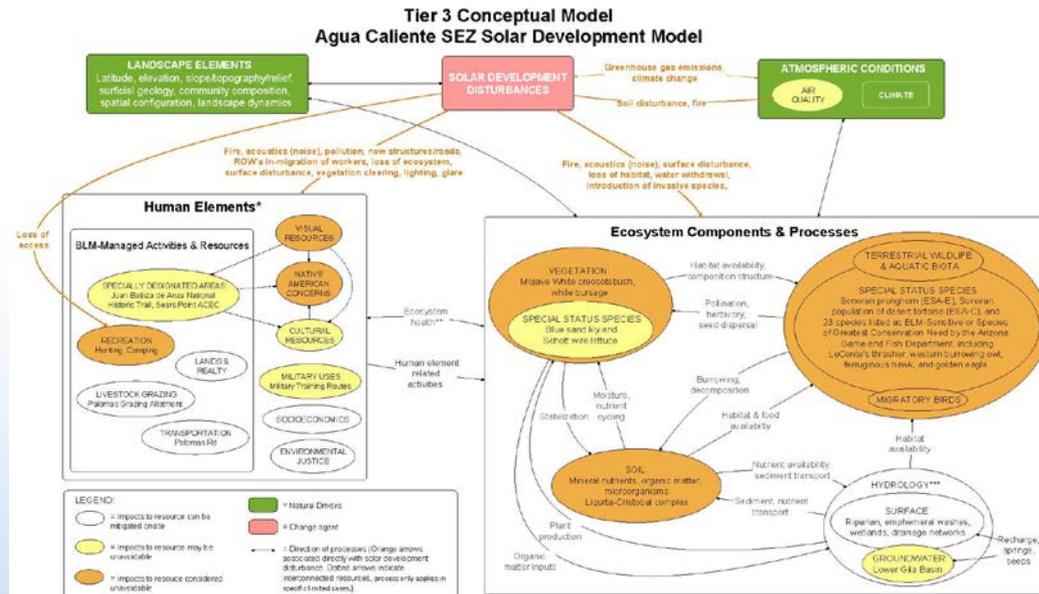
- A BLM team will construct conceptual models to
  - explain role that resources, individually and in concert with one another, play in the function of the relevant ecological, social, and cultural systems present in the region
  - provide context to identify critical resources
- Introduced in April Workshop for AZ SEZs
- Public comments will help refine conceptual models

# AZ Models



## Tier 1 conceptual model for the Sonoran Desert Ecoregion

## Tier 3 conceptual model for the Agua Caliente SEZ



# Regional At-Risk Resources & Processes

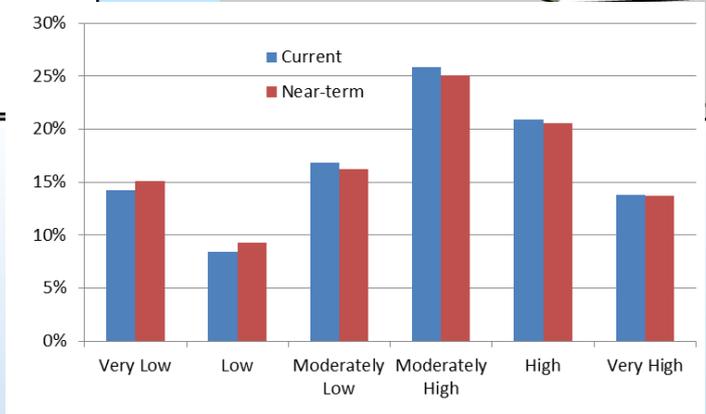
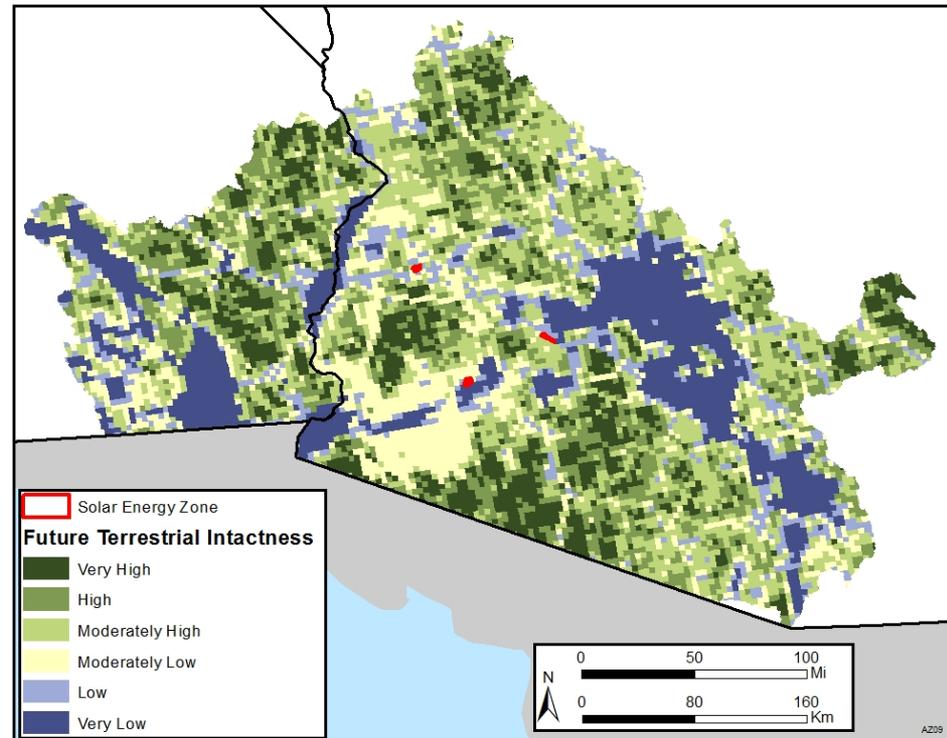
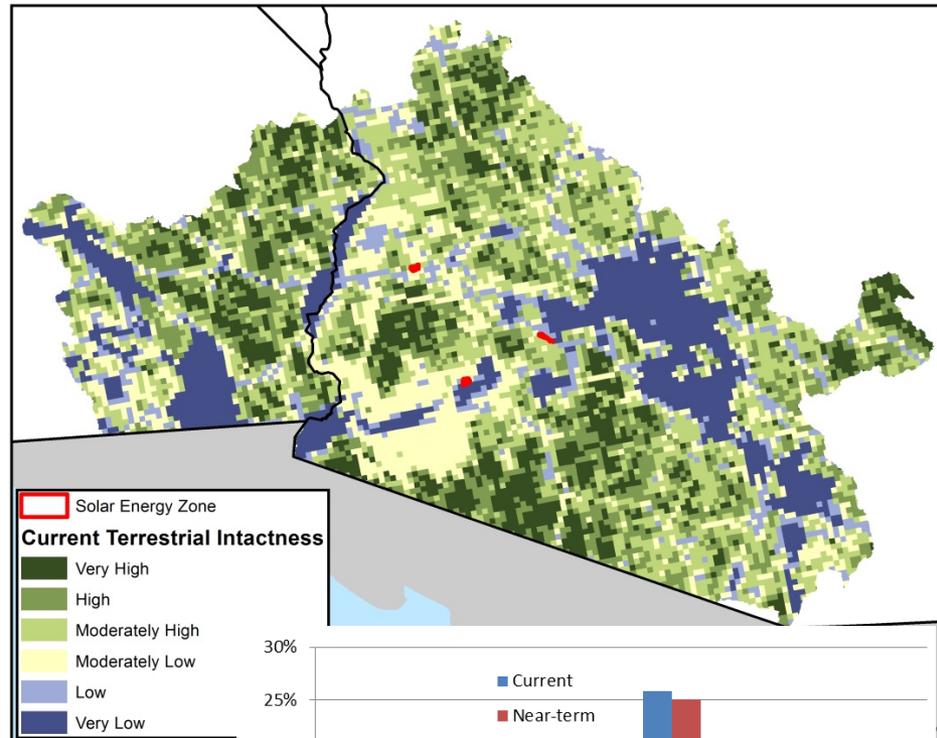
- The BLM interdisciplinary team will identify at-risk resources and processes in the region
  - Based on best-available information, conceptual models, assessments, and expert opinion
  - Crosswalk the at-risk resources with resources identified as likely to have unavoidable adverse impacts due to solar energy development within the SEZ
  - Estimate how the unavoidable impacts of solar energy development will affect the status and trend of the at-risk resource values at both local and regional scales

# Regional Significance of Unavoidable Impacts

- The BLM interdisciplinary team will recommend which identified unavoidable impacts may warrant regional (offsite) mitigation, based on degree of impact. The criteria/decision point will reference:
  - The relative importance placed on the resource in the land use plan;
  - The rarity, legal status, or state or national policy status of the resource; and
  - The resilience of the resource in the face of change and impact.
- These criteria are recommended in BLM's Draft Regional Mitigation Manual Section 1794

# Status and Trends: Terrestrial Intactness

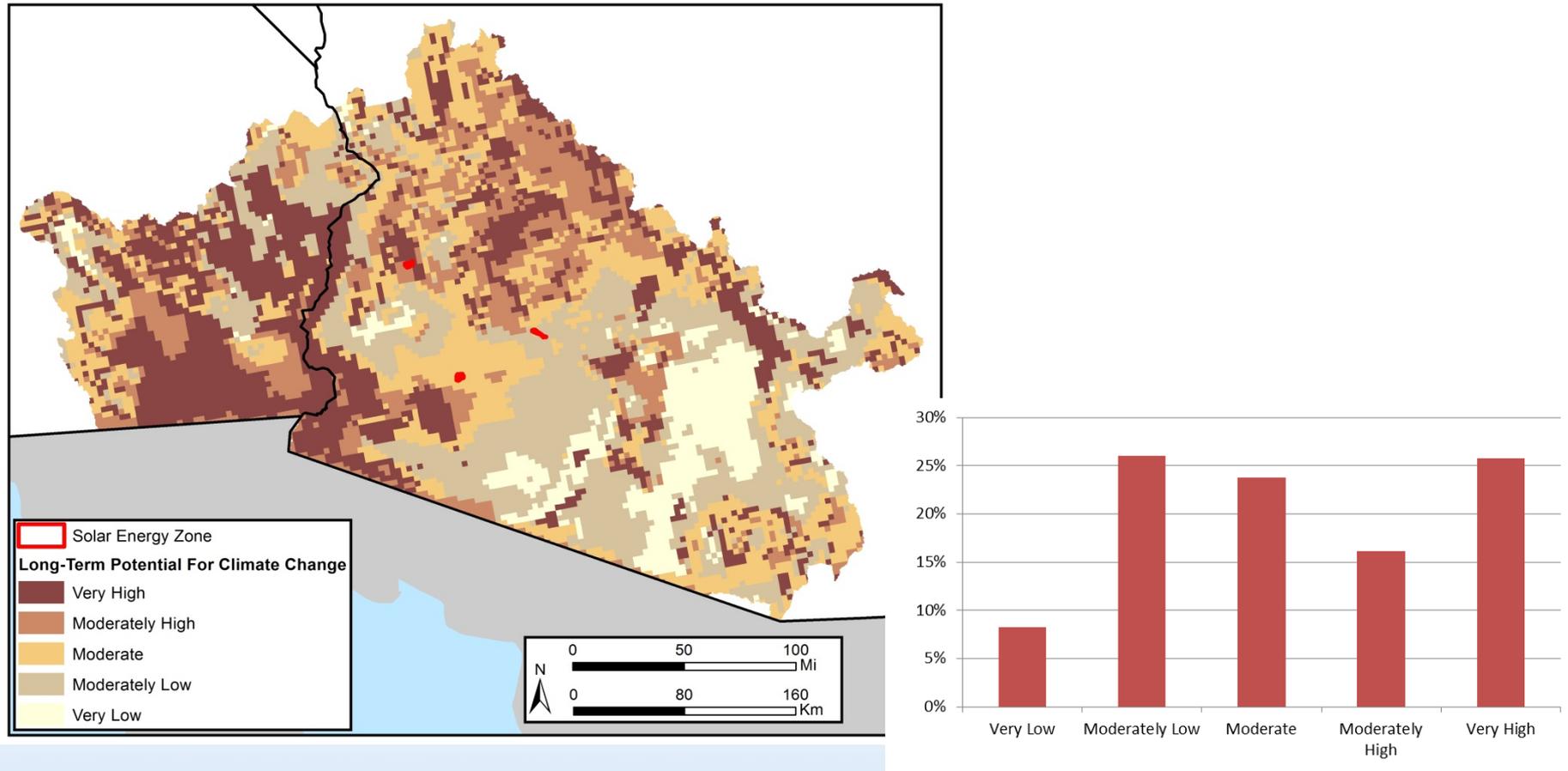
Source: Sonoran Desert Rapid Ecoregional Assessment



1.1% projected decrease in “high” intact areas

# Status and Trends: Climate Change

Source: Sonoran Desert Rapid Ecoregional Assessment



Long-term potential for climate change

# Unavoidable Impacts that Warrant Off-site Mitigation

- The BLM interdisciplinary team will apply the criteria to the assumed full build-out of the SEZ to identify which unavoidable impacts, in the context of the regional setting, will likely warrant off-site mitigation.
- Following regional condition and trends assessment, the BLM interdisciplinary team will finalize the list of unavoidable impacts that will likely warrant off-site mitigation.

# Preliminary Identification of Resources that “May Warrant Regional Mitigation” in AZ SEZs

- Cultural
- Vegetation and Riparian Areas
- Terrestrial Wildlife and Aquatic Biota
- Migratory Birds
- Animal Special Status Species
- Plant Special Status Species (Agua Caliente only, if present in SEZ)
- Public Access and Recreation (Agua Caliente only)
- Soils
- Visual

Identify the unavoidable adverse impacts that may warrant off-site mitigation

\*\*\*\*\*

Maybes – EJ; Surface Water; Groundwater; Native American Concerns, pending consultation; Specially Designated Areas

# Revised Tables Available on Project Web Site

[http://www.blm.gov/az/st/en/prog/energy/solar/arizona\\_regional\\_mitigation.html](http://www.blm.gov/az/st/en/prog/energy/solar/arizona_regional_mitigation.html)

Please provide comments on the table revisions and unavoidable adverse impacts that may warrant regional mitigation by **July 30, 2014**.

Comments can be e-mailed to Lane Cowger at [lcowger@blm.gov](mailto:lcowger@blm.gov)

# Candidate Site Matrix

# Evaluating Candidate Sites for Implementing Mitigation Actions

- Candidate Site Requirements
  - appropriately located (within ecoregion or watershed of SEZ)
  - meet criteria to support attainment of regional mitigation goals and objectives
- Screen and evaluate candidate sites using BLM-developed matrix
- Supports systematic and objective comparison and ranking of mitigation sites/actions, stakeholder communication, and informing future BLM decisions
- Matrix (originally developed for the Dry Lake SEZ pilot) has been posted on the project website

# Evaluation Criteria

## 1. Site Characterization and Mitigation Site Qualifying Criteria

- Characteristics that are largely known/measurable
- Help determine whether the candidate site is comparable to the SEZ and/or can support effective mitigation actions

## 2. Effectiveness/Additionality Criteria

- Factors that measure how effective mitigation actions will be in terms of meeting goals/objectives
- Factors that assess whether actions at the site meet the requirements for additionality

# Evaluation Criteria, *continued*

## 3. Feasibility Criteria

- Factors that measure the difficulty of implementing mitigation actions, the timelines required, and the total and per-acre costs

## 4. Durability Criteria

- Factors that measure the durability of the mitigation in terms of permanence and stability of the mitigation site

## 5. Risk Criteria

- Factors that measure the degree to which multiple factors might jeopardize long-term success of the mitigation actions

# Proposed Scoring System

- A numerical score will be assessed for most of the criteria
  - Criteria that require a numerical score are shaded in blue
  - Guidance on scoring is provided in the matrix
  - For many criteria the scores range from 0 or 1 to 5, with 5 being the most favorable score in terms of suitability of the candidate site
  - For some criteria, the absence of a specific feature/attribute will result in a negative value (e.g., -2)
- A total score for each candidate site will be calculated by summing the individual criteria scores
- Higher total scores generally mean more favorable candidate sites
- Some criteria cannot be assigned a score; they provide relevant information to be considered in assessing scores for other criteria and for making decisions about mitigation sites

# Site Characterization

1. Contiguous area (*provide size in acres*)
2. Reason for ACEC designation (*list reason[s], if candidate site encompasses land within an ACEC*)
3. VRM Class
4. Consistent with BLM Resource Management Plan (*score 1 if met, -2 if not*)
5. Same HUC 4 Watershed (*score 1 if met, -2 if not*)
6. Mitigation tool (e.g., restoration, acquisition, banking, withdrawal, special designation) (*identify potential tools*)

# Mitigation Site Qualifying Criteria

7. Same SEZ Ecoregion (*score 1 if met, -2 if not*)
8. Same SEZ ecological subregion (*score 1 if met, -2 if not*)
9. Meets priorities for ESA critical habitat (*score 1 if met, -2 if not*)
10. Mitigates impacts on “least common and most geographically restricted species” (*score 1 if met, -2 if not*)
11. Mitigates for all or most identified unavoidable impacts that warrant offsite mitigation (*score 1 if met, -2 if not*)
12. Similar landscape value, ecological functionality, biological value, species, habitat types, and/or natural features. (*score 1 if met, -2 if not*)
13. Provides adequate geographic extent (*score 1 if met, -2 if not*)



*if candidate site does not meet one of the above criteria*

# Mitigation Site Qualifying Criteria, *continued*

- 14. Presence of Unique or Valuable Resources or Features
  - 14a. Perennial, protected sources of water
  - 14b. Unique species assemblages
  - 14c. Protected species and/or critical habitat
  - 14d. Desert washes or ephemeral playas
  - 14e. Other
- 15. Sources of data for the sites

# Effectiveness/Additionality Criteria

16. Extent to which regional mitigation goals and objectives can be met (*score of 0-5*)
17. Effectiveness of mitigation action(s) in context of achieving goal for conserving/restoring ecosystem intactness (*score of 1-5*)
18. Whether or not the action adds to/goes beyond BLM's existing mandates for resource management (i.e., meets the additionality requirement) (*score 1 if met, -2 if not*)

# Feasibility Criteria

19. Based on type of action required (e.g., restoration, BLM planning decision, land acquisition, Congressional action), how difficult will implementation be (*score of 1-5*)
20. Time frame to establish site as a mitigation location (*provide number or range of years*)
21. Time frame (from implementation) to achieve mitigation goals and objectives (*provide number or range of years*)
22. Cost estimate (*provide total and per-acre cost*)

# Durability Criteria

23. How durable will the action be from a timeframe and management perspective? *(score of 1-5, low to high)*
24. How durable would the mitigation be in the context of permanence of conservation and biodiversity protections? *(score of 1-5, low to high)*

# Risk Criteria

25. Constraints or threats to success *(list)*
26. Extent to which surrounding land uses might impact mitigation success *(score of 1-5, considerable to low)*
27. Relative probability of success *(score of 1-5, low to high)*

# Recommendations for Candidate Sites and Actions Requested

Candidate Site Matrix Template Available on Project Web Site

[http://www.blm.gov/az/st/en/prog/energy/solar/arizona\\_regional\\_mitigation.html](http://www.blm.gov/az/st/en/prog/energy/solar/arizona_regional_mitigation.html)

Please provide candidate site location and action recommendations along with supporting documentation by **August 20, 2014**.

Information can be submitted by e-mail to Lane Cowger at [lcowger@blm.gov](mailto:lcowger@blm.gov)

# How Stakeholders Can Help BLM Identify Candidate Site Locations

- When recommending a candidate site location, please include the following information
  - GIS shape file of location
  - Number of acres proposed
  - HUC 4 watershed
  - Likely mitigation tool/action
  - Whether location meets the Mitigation Site Qualifying Criteria
  - List of the unique/valuable resources/features present at site
  - List of the resources that could be mitigated for at that location
  - Reference material/data sources
  - Any additional information that would assist BLM in scoring the site for additionality, feasibility, durability, and risk

# Questions?

